

REMARKS

Applicant respectfully requests reconsideration of this application as amended.

By this Amendment, the claims have generally been amended to more particularly claim certain aspects of the invention and overcome the rejections raised under 35 U.S.C. § 112, second paragraph. Furthermore, the independent claims have been amended to clarify the operation of the intelligent agent by specifically stating that establishing correspondence includes one or more of protocol conversion and script translation between information exchanged with the object file.

Regarding the objection to the specification, Applicant is puzzled in that the November 15, 2000 Preliminary Amendment formally added headings to the specification. Should the Examiner desire a courtesy copy of the November 15 Preliminary Amendment, the Examiner is respectfully requested to contact the undersigned for a copy thereof.

The Examiner raises a concern that it is not understood "how a two-way data exchange session between two agents" can be performed by at least one intelligent agent and a network interface means of the card and the matching network interface means of the terminal.

Page 15, lines 28-30, of the specification states that "in summary, the 'webserver' function provided by the smart card 2a can be produced by associating the 'web' intelligent agent 232a₁ in the smart card with the network agent 132 in the terminal." The network agent in the terminal is part of the network interface means of the terminal (matching the network interface means of the smart card). This network agent can receive the information translated by the intelligent agent of the smart card and send it to the web browser in the terminal connected to the network. Page 18, lines 9-19, of the specification specifies that the script translating agent can perform script translation in various ways among which "by the 'web'"

agent 232a₁ itself, which in this case is equipped with a double capacity" of protocol conversion (for accessing an object file stored in the smart card) and of script translation (for the instantiation of the object).

Therefore, for example, with the network interface means of the terminal and the smart card, only one intelligent agent is needed, for example to access information related (or assigned) to an object file stored in the memory of the smart card and to create an instance of the object defined by the object file. The intelligent agent(s) will thus be enabled to "establish correspondence" between the information exchanged with the object file and the information passing through the network interface means.

As discussed above, the independent claims have been modified to state "at least one intelligent agent for establishing correspondence, including one or more protocol and script translation between information exchanged with said object file and information passing through the network interface..." Therefore, in contrast with the cited art, an exemplary embodiment of the present invention concerns the interface needed for data exchange between a smart card and a terminal, whereas the cited art concern various terminals comprising a smart card.

In general, an exemplary embodiment of the present invention relates to a smart card comprising a memory and an information processor. The system is considered an embedded system because a smart card contains the necessary means for controlling communications with a terminal on the network, thus enabling the embedded system to constitute an information server in the network. The specification explains that the smart card cooperates with the terminal, for communication in the network, thanks to the respective network interface means. The smart card can provide objects to any browser program accessing the smart card through the network, as well as methods to access these objects. The smart card stores object files containing the necessary information for enabling the instantiation of

objects, with the expression "objects" referring to any resource such as a document, a multimedia file, and even an application. This is possible because the information contained in the object file enables the execution of at least one intelligent agent on the information processor of the smart card. This intelligent agent constitutes an object file interface which realizes the various protocol conversions for communication between the browser of the terminal and the smart card and thus establishes correspondence between information exchanged with at least one object file and the information passing through the network interface means of the terminal and assigned to at least the object file. This object file interface allows the translation of information stored on the smart card and information able to be processed by the network interface means of the terminal.

Smart cards need to be addressed by specific protocols because of their structure and small memory capacities. These specific protocols are not compatible with the protocols used for communication in Internet networks. At least this limitation of the prior art is overcome by the present invention. Thus, an exemplary embodiment of the present invention allows a browser terminal to access objects, thanks to information stored on the smart card, enabling protocol conversions by at least one intelligent agent executed on the information processor of the smart card, through an object file interface arranged for establishing correspondence between information exchanged with at least one object file and the information passing through the network interface means and assigned to the object file.

Additional exemplary advantages discussed in the specification relate to the ability of the invention to allow the execution, in the browser of a terminal, of applications stored on the smart card without having to modify them. These applications are small pieces of software, usually written in JAVA® and called "applets" (when implemented in a browser) or "cardlet" (when implemented in a smart card).

Chen is directed toward an electronic payment system having a smart card storing a cyber wallet comprising sensitive account information, a public key file, and a browser program. The browser program enables the transmission of an authorization ticket to a merchant which forwards it to an account processor for the authorization of transactions. The interaction of these three components is described in detail on column 4, lines 1-13, of Chen and column 6, lines 21-26.

However, not only does Chin not disclose that the browser program could be stored on the smart card, Chen also makes no reference to the inclusion of an interface means for establishing a correspondence between information stored and processed on the smart card. Moreover, the "cyber wallet" designed by Chen is not an embedded system and does not constitute a server in the network. In contrast, Chen provides information to a browser connected as a client in the network, and requesting an authorization to a server. Chen does not teach or suggest an embedded system with a processor comprising an object file interface for establishing correspondence (such as protocol conversion and/or script translation) between information exchanged with at least one object file and the information passing through the network interface means and assigned to at least said object file.

Linden is directed toward a method for communication in a network, in which a mobile station comprises protocol means for establishing a request, containing address information identifying a local resource stored on a smart card located in the mobile station. Linden takes into account the protocol layers needed for communication in a network and for data exchange between a terminal and a smart card, because Linden concerns the protocol stacks needed to access a resource on a network, as shown in Fig. 2B, or to access local resource on a smart card, as shown in Fig. 3. Linden however does not need two protocol stacks in the same device for requesting a local resource on the smart card (column 9, line 30), and confirmed in Figs. 4 and 5, which represent the preferred embodiment of Linden's

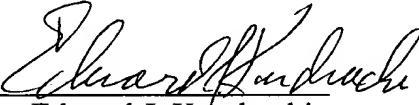
invention. On column 9, line 52 of Linden, it is mentioned that "a separate port is allocated to the interface of the smart card," for the implementation of Linden's invention. Thus, only one protocol stack is sufficient to address resources located in the smart card, which can be identified by a "protocol means of the application protocol," embodied in one of the layers in the protocol stacks. This is evident because the request for local resources located on the smart card are sent to the interface of the smart card. However, any element of a protocol stack in the terminal will need the presence of its counterpart in the interface of the smart card, for the translation of the request into low-level commands to be sent to the smart card itself. Such interface of the smart card is essential for the implementation of Linden's invention but no details given on the content of this interface. It is even specifically mentioned by Linden that "the protocols related to the interface of the smart card in connection with data transmission are taken care of by the application software used" and that this application software that is taking care of the interface is stored "in the program memory of the smart card at the manufacturing stage of the card." Thus, it is abundantly clear that Linden is not concerned with the interface of the smart card, which is developed by manufacturers, but rather concerns the way to send information to this interface.

Linden clearly does not teach or suggest the implementation of intelligent agents in an object file interface, in order to transmit requests to the smart card, for the translation of the request sent to the interface in a language related to a browsing protocol into requests in a low-level language intelligible for the smart card. Therefore, the smart card of Linden can not be considered as an embedded system able to behave like a server in the network, because Linden does not teach or suggest an object file interface for establishing correspondence (such as protocol conversion and/or script translation) between information exchange with at least one object file and the information passing through the network interface means an assigned to at least said object file.

Accordingly, the claims are clearly neither anticipated or rendered obvious by the cited references. An early Notice of Allowance is respectfully solicited.

The Commissioner is hereby authorized to charge to deposit account number 50-1165 (Docket No. T2146-906652) and fees not included herein, under 37 CFR §§ 1.16 and 1.17, that may be required by this paper and to credit any overpayment to that Account. A duplicate copy of this page is included for such purpose. If any additional extension of time is required in connection with the filing of this paper and has not been separately requested, such extension is hereby requested.

Respectfully submitted,

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